Minor Industrial
Permit No.: MT0031593

MONTANA DEPARTMENT OF ENVIRONMENTAL QUALITY

AUTHORIZATION TO DISCHARGE UNDER THE
MONTANA POLLUTANT DISCHARGE ELIMINATION SYSTEM

In compliance with Montana Water Quality Act, Title 75, Chapter 5, Montana Code Annotated (MCA) and the Federal Water Pollution Control Act (the "Clean Water Act"), 33 U.S.C. § 1251 *et seq.,*

James W. Guercio

is authorized to discharge from its **Hanging Woman Creek Project Treatment Facility**

located in **Township 9S, Range 43 E, Section 33, NE1/4, near Decker Montana**

to receiving waters named, **Hanging Woman Creek, Trail Creek, East Trail Creek, Horse Creek**

in accordance with discharge point(s), effluent limitations, monitoring requirements and other conditions set forth herein. Authorization for discharge is limited to those outfalls specifically listed in the permit. The wasteload allocation specified herein support and serve to define the total maximum daily load for affected receiving water.

This permit shall become effective: **February 1, 2011**

This permit and the authorization to discharge shall expire at midnight: **January 31, 2016.**

FOR THE MONTANA DEPARTMENT OF
ENVIRONMENTAL QUALITY

Jenny Chambers, Chief
Water Protection Bureau
Permitting & Compliance Division

Issuance Date: December 15, 2010

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I. EFFLUENT LIMITATIONS, CONDITIONS AND MONITORING REQUIREMENTS

A. Description of Discharge Points and Mixing Zone

The authorization to discharge provided under this permit is limited to those outfalls specially designated below as discharge locations. Discharges at any location not authorized under an MPDES permit is a violation of the Montana Water Quality Act and could subject the person(s) responsible for such discharge to penalties under the Act. Knowingly discharging from an unauthorized location or failing to report an unauthorized discharge within a reasonable time from first learning of an unauthorized discharge could subject such person to criminal penalties as provided under Section 75-5-632 of the Montana Water Quality Act.

Outfall	Description
001	Location: At the end of pipe, discharging into the Horse Creek, located at (45º 07' 28") N latitude, (106º 25' 34") W longitude. Mixing Zone: No mixing zone is granted, all the permit limitations have to be met at the end of the pipe.
002	Location: At the end of pipe, discharging into East Trail Creek, located at (45º 04' 07") N latitude, (106 º 22' 01") W longitude. Mixing Zone: No mixing zone is granted, all the permit limitations have to be met at the end of the pipe.
003	Location: At the end of pipe, discharging into Trail Creek, located at (45º 01' 48") N latitude, (106º 20' 42") W longitude. Mixing Zone: No mixing zone is granted, all the permit limitations have to be met at the end of the pipe.
004	Location: At the end of pipe, discharging into the Hanging Woman Creek, located at (45º 04' 39") N latitude, (106º 27' 17") W longitude. Mixing Zone: No mixing zone is granted, all the permit limitations have to be met at the end of the pipe.
005	Location: At the end of pipe, discharging into the Hanging Woman Creek, located at (45º 07' 59") N latitude, (106º 28' 32") W longitude.

Mixing Zone: No mixing zone is granted, all the permit limitations have to be met at the end of the pipe.

B. Effluent Limitations

1. Outfall 001 through 004

a. Beginning on the effective date of this permit and lasting through the term of the permit, the quality of effluent discharged by the facility shall, as a minimum, meet the limitations as set forth below in Table 1:

Table 1. Effluent Limitations for Outfalls 001 through 004: September 1 through March 31

Parameters	Units	Average Monthly Limit (AML) (1)	Maximum Daily Limit (MDL) (1)
Sodium Adsorption Ratio (1) (Mar. 1 to Oct. 31)	NA(2)	1.3	2.6
Sodium Adsorption Ratio (1) (Nov. 1 through February)	NA(2)	3.3	6.6
Electrical Conductivity (1) (Mar. 1 to Oct. 31)	µS/cm	480	964
Electrical Conductivity (1) (Nov. 1 through February)	µS/cm	631	1,265
Iron, total recoverable	mg/L	0.6	NA(2)
Fluoride	mg/L	0.5	NA(2)
Sodium	mg/L	186	287
Oil and Grease	mg/L	NA(2)	10

Note:
(1) See Part V for definition of terms.
(2) NA–Not applicable

b. Other Limitations:

(1). April 1 through August 31: no discharge allowed
September 1 through March 31: Maximum effluent shall not exceed:
0.19 million gallon per day (mgd) for Outfall 001
0.19 mgd for Outfall 002
0.32 mgd for Outfall 003
0.32 mgd for Outfall 004

(2). The instantaneous pH in effluent shall remain between 6.5 and 9.0 standard units.

2. Outfall 005

a. Beginning on the effective date of this permit and lasting through the term of the permit, the quality of effluent discharged by the facility shall, as a minimum, meet the limitations as set forth below in Table 2:

Table 2. Effluent Limitations for Outfall 005

Parameters	Units	Average Monthly Limit (AML) (1)	Maximum Daily Limit (MDL) (1)
Sodium Adsorption Ratio(1) (Mar. 1 to Oct. 31)	NA(2)	1.3	2.6
Sodium Adsorption Ratio(1) (Nov. 1 through February)	NA(2)	3.3	6.6
Electrical Conductivity (1) (Mar.1 to Oct. 31)	µS/cm	480	964
Electrical Conductivity (1) (Nov. 1 through February)	µS/cm	631	1,265
Iron, total recoverable	mg/L	0.6	NA
Fluoride	mg/L	0.5	NA
Ammonia, total as N	mg/l	0.13	0.26
Total Suspended Solids (TSS)	mg/L	17	40
Sodium	mg/L	186	287
Oil and Grease	mg/L	NA(2)	10

Note:
(1) see Part V for definition of terms.
(2) NA–Not applicable

b. Other Limitations

(1). Maximum effluent shall not exceed: 5.43 mgd

(2). The instantaneous pH in effluent shall remain between 6.5 and 9.0 standard units.

C. Monitoring Requirements

1. Outfall 001 through 004

As a minimum, upon the effective date of this permit, the following constituents shall be monitored at the frequency and with the type of measurement indicated; samples or measurements shall be representative of the volume and nature of the monitored discharge. If no discharge occurs during the entire monitoring period, it shall be stated on the Discharge Monitoring Report Form (EPA No. 3320-1) that no discharge or overflow occurred. The parameters and monitoring frequency for effluent monitoring of Outfall 001 through 004 are listed in Table 3.

Table 3. Effluent Monitoring Requirements for Outfall 001, 002, 003, and 004

Parameter	Frequency [2]	Sample Type [1]	Minimum Level
Effluent Flow Rate, mgd	Continuous	Instantaneous [4]	
pH, standard unit	Weekly	Instantaneous	0.1
Temperature, ºF	Weekly	Instantaneous	1
Electrical Conductivity [1], µS/cm	Monthly	Instantaneous	10
Total Dissolved Solids, mg/L	Monthly	Grab	10
Sodium Adsorption Ratio[1], unitless	Monthly	Calculated	0.1
Fluoride, mg/L	Monthly	Grab	0.1
Iron, total recoverable, mg/L	Monthly	Grab	0.05
Sodium, mg/L	Weekly	Grab	1
Bicarbonate (HCO_3^-), mg/L	Weekly	Grab	1
Oil & Grease, mg/L	Monthly	Grab	1

Footnotes:
(1) See Part V for definition of terms.
(2) Refers to the frequency of observation or measurement.
(3) Requires the use of flow recording/totalizing device.

2. Outfall 005

As a minimum, upon the effective date of this permit, the following constituents shall be monitored at the frequency and with the type of measurement indicated; samples or measurements shall be representative of the volume and nature of the monitored discharge. If no discharge occurs during the entire monitoring period, it shall be stated on the Discharge Monitoring Report Form (EPA No. 3320-1) that no discharge or overflow occurred. The parameters and monitoring frequency for effluent monitoring of Outfall 005 are listed in Table 4.

Table 4. Effluent Monitoring Requirements for Outfall 005

Parameter	Frequency [2]	Sample Type [1]	Minimum Level
Effluent Flow Rate, mgd	Continuous	Instantaneous [3]	NA
pH, standard unit	Continuous	Instantaneous	0.1
Temperature, ºF	Continuous	Instantaneous	1
Electrical Conductivity, µS/cm	Continuous	Instantaneous	10
Total Dissolved Solids, mg/L	Weekly	Grab	10
Sodium Adsorption Ratio[1], unitless	Weekly	Calculated	0.1
Ammonia, Total as N, mg/L	Weekly	Grab	0.05
Fluoride, mg/L	Weekly	Grab	0.1
Iron, total recoverable, mg/L	Weekly	Grab	0.05
Total Suspended Solids, mg/L	Monthly	Grab	10
Sodium, mg/L	Weekly	Grab	1
Bicarbonate (HCO_3^-), mg/L	Weekly	Grab	1
Oil & Grease, mg/L	Monthly	Grab	1

Footnotes:
(1) See Part V for definition of terms.
(2) Refers to the frequency of observation or measurement.
(3) Requires the use of flow recording/totalizing device.

D. Special Conditions

1. Supplemental Effluent Monitoring

a. Outfall 001 through 004

The permittee shall conduct supplemental monitoring of the effluent discharged from the Outfall 001 through 004 for the parameters and frequency listed below in Table 5.

Table 5. Supplemental Effluent Monitoring for 001, 002, 003, and 004			
Parameter	Frequency [1]	Sample Type [2]	Minimum Level
Aluminum, Dissolved, mg/L	Semi Annual	Grab	0.030
Ammonia, Total as N, mg/L	Semi Annual	Grab	0.05
Biochemical Oxygen Demand, mg/L	Semi Annual	Grab	5
Barium, Total Recoverable, mg/L	Semi Annual	Grab	0.005
Boron, Total Recoverable, mg/L	Semi Annual	Grab	0.01
Copper, Total Recoverable, mg/L	Semi Annual	Grab	0.001
Cyanide, Total, mg/L	Semi Annual	Grab	0.005
Kjeldahl Nitrogen, Total as N, mg/L	Semi Annual	Grab	0.1
Lead, Total Recoverable, mg/L	Semi Annual	Grab	0.0005
Mercury, Total Recoverable, mg/L	Semi Annual	Grab	0.00001
Manganese, Total Recoverable, mg/L	Semi Annual	Grab	0.005
Nitrite+Nitrate, as N mg/L	Semi Annual	Grab	0.01
Strontium, Total, mg/L	Semi Annual	Grab	0.1
Total Phosphorous as P, mg/L	Semi Annual	Grab	0.01
Total Nitrogen, mg/L [3]	Semi Annual	Calculated	0.1

Footnotes:
(1) Refers to the frequency of observation or measurement.
(2) See the definitions in Part V of the permit.
(3) Total nitrogen is the sum of Kjeldahl nitrogen and nitrite plus nitrate nitrogen.
NA – Not Applicable

b. Outfall 005

The permittee shall conduct supplemental monitoring of the effluent discharged from the Outfall 005 for the parameters and frequency listed below in Table 6.

Table 6. Supplemental Effluent Monitoring for 005

Parameter	Frequency [3]	Sample Type [4]	Minimum Level
Aluminum, Dissolved, mg/L	Quarterly	Grab	0.030
Barium, Total Recoverable, mg/L	Quarterly	Grab	0.005
Boron, Total Recoverable, mg/L	Quarterly	Grab	0.01
Biochemical Oxygen Demand, mg/L	Quarterly	Grab	5
Copper, Total Recoverable, mg/L	Quarterly	Grab	0.001
Cyanide, total, mg/L	Quarterly	Grab	0.005
Kjeldahl Nitrogen, Total as N, mg/L	Quarterly	Grab	0.1
Lead, Total Recoverable, mg/L	Quarterly	Grab	0.0005
Mercury, Total Recoverable, mg/L	Quarterly	Grab	0.00001
Manganese, Total Recoverable, mg/L	Quarterly	Grab	0.005
Nitrite+Nitrate, as N mg/L	Quarterly	Grab	0.01
Strontium, Total, mg/L	Quarterly	Grab	0.1
Total Phosphorous as P, mg/L	Quarterly	Grab	0.01
Total Nitrogen, mg/L [1]	Quarterly	Calculated	0.1
Whole Effluent Toxicity, chronic [2]	Annual	Grab	NA

Footnotes:
(1) Total inorganic nitrogen is the sum of ammonia and nitrite plus nitrate.
(2) The WET test shall be conducted for a 3-brood larval survival and reproduction static renewal chronic toxicity test using Ceriodaphnia dubia (EPA Method 1002.0) and a 7-day survival and growth static renewal chronic toxicity test using Pimephales promelas (fathead minnow) (EPA Method 1000.0).
(3) Refers to the frequency of observation or measurement.
(4) See the definitions in Part V of the permit.
NA – Not Applicable

Whole Effluent Toxicity (WET) Testing and Reporting Requirements – Chronic Toxicity

There are no chronic toxicity limits for this discharge. Monitoring for chronic toxicity is required, as described below. Chronic toxicity occurs when, during a chronic toxicity test, the 25% inhibition concentration (IC_{25}) calculated for any tested species is less than 100 percent effluent. Chronic toxicity tests to determine the IC_{25} of the effluent from Outfall 005 shall be conducted in accordance with the requirements below. No mixing zone or dilution allowance is authorized for chronic toxicity. This permit requires additional toxicity testing if chronic toxicity occurs during routine testing.

Samples or measurements shall be representative of the volume and nature of the monitored discharge. In addition, the permittee shall meet the general monitoring and reporting requirements included below.

Sampling. Beginning in the first calendar year following the effective date of the permit, the permittee shall, at least once each calendar year, conduct chronic short term toxicity tests on a composite sample of the final effluent. Testing shall employ two species per test and will consist of 5 effluent concentrations (100, 75, 50, 25, and, 12.5 percent effluent) and a control. Dilution water and the control shall consist of the receiving water or standard synthetic dilution water given in the test procedure. Annual samples shall be collected on a quarterly progression; i.e., if the first annual sample is collected in the first calendar quarter, the second annual sample shall be collected in the second calendar quarter.

Methods. The chronic toxicity tests shall be conducted in general accordance with the procedures set out in *Short Term Methods for Estimating the Chronic Toxicity of Effluents and Receiving Waters to Freshwater Organisms*, Fourth Edition, EPA-821-R-02-013 (or a subsequent edition) and the *Region VIII EPA NPDES Chronic Test Conditions—Static Renewal Whole Effluent Toxicity Test*. The permittee shall conduct a 3-brood larval survival and reproduction static renewal chronic toxicity test using *Ceriodaphnia dubia* (EPA Method 1002.0) and a 7-day survival and growth static renewal chronic toxicity test using *Pimephales promelas* (fathead minnow) (EPA Method 1000.0).

Quality Assurance and Test Validity. Quality assurance measures and other requirements are found in the test manual cited above. If organisms are not cultured in-house, then concurrent testing with a reference toxicant shall be conducted. If organisms are cultured in-house, then monthly reference toxicant testing is sufficient. Reference toxicant tests and effluent toxicity tests shall be conducted using the same test conditions. If more than 20 percent control mortality occurs, the test shall be considered invalid. If either the reference toxicant or effluent toxicity tests do not meet all test acceptability criteria in the methods and this permit, then the permittee must resample and retest within 14 days.

Accelerated Testing and Toxicity Reduction Evaluation (TRE) /Toxicity Identification Evaluation (TIE) Process. If chronic toxicity occurs in a routine test, an additional test shall be conducted within 14 days of the date of completion of the initial test in which chronic toxicity was detected. If the additional toxicity test does not exceed a chronic limit or trigger (test failure) then the permittee may return to their regular testing frequency. Should chronic toxicity occur in the additional test, the permittee shall conduct six additional toxicity tests using the same species and test method, approximately every two weeks over a 12 week period. This additional testing shall begin within 14 days of receipt of test results indicating a failed chronic test. If none of the six additional toxicity tests exceed a

chronic WET permit limit or trigger, then the permittee may return to their regular testing frequency.

If one of the six additional toxicity tests exceed a chronic WET permit limit or trigger then within 14 days of receipt of the test result, the permittee shall initiate a TRE using the EPA manual *Generalized Methodology for Conducting Industrial Toxicity Reduction Evaluations* (EPA/600/2-88/070, 1989) as guidance. In conjunction with the TRE, the permittee shall develop and implement a Detailed Work Plan which shall include: further actions undertaken by the permittee to investigate, identify, and correct the causes of toxicity; actions the permit will take to mitigate the impact of the discharge and prevent the recurrence of toxicity; and a schedule for these actions.

The permittee may initiate a TIE as part of a TRE to identify the causes of toxicity using the same species and test method, and using EPA test method manuals as guidance: *Toxicity Identification Evaluation: Characterization of Chronically Toxic Effluents, Phase I* (EPA/600/6-91/005F, 1992); *Methods for Aquatic Toxicity Identification Evaluations, Phase II Toxicity Identification Procedures for Samples Exhibiting Acute and Chronic Toxicity* (EPA/600/R-92/080, 1993); and *Methods for Aquatic Toxicity Identification Evaluations, Phase III Toxicity Confirmation Procedures for Sampling Exhibiting Acute and Chronic Toxicity* (EPA/600/R-92/081, 1993).

Reporting of Chronic Toxicity Monitoring Results. A full laboratory report for all toxicity testing shall be submitted as an attachment to the DMR for the month in which the toxicity test was conducted and shall include IC_{25} and TU_C ($TU_C = 100/IC_{25}$) reported according to the test methods manual chapter on report preparation and test review. Results shall be reported on a form consistent with the latest version of EPA Region 8 *Chronic Toxicity Test Report Format* available on the EPA Region 8 website (http://www.epa.gov/region8/) and include all applicable physical and chemical data, and, sample and test dates as required by the form. The permittee must also report on the progress and status of any TRE/TIE investigations required by this permit.

The permittee shall notify the Department in writing and within 14 days of exceedance of a chronic WET permit limit or trigger.

2. Initial TRE Work Plan

Within 90 days of the permit effective date, the permittee shall prepare and submit an Initial Toxicity Reduction Evaluation Plan (TRE) Work Plan (1-2 pages) for Department review. This plan shall include steps the permittee intends to follow if toxicity for Outfall 005 is measured above a chronic WET permit limit or trigger and should include at a minimum:

a. A description of the investigation and evaluation techniques that would be used to identify potential causes and sources of toxicity, effluent variability, and treatment system efficiency.
b. A description for maximizing in-house treatment system efficiency, good housekeeping practices, and a list of all chemical used in the operation at the facility.
c. If a Toxicity Identification Evaluations (TIE) is necessary, an indication of who would conduct the TIE.

3. Instream Monitoring

The permittee is required to conduct instream monitoring at one location in Hanging Woman Creek near and above its mouth to the Tongue River. The purpose of this monitoring is to ensure assess the effect of discharge on channel stability of the lower reach of Hanging Woman Creek. The parameters required for monitoring are listed in Table 7.

Table 7. Instream Monitoring Requirements

Parameter	Frequency (2)	Sample Type (3)	Minimum Level
Flow Rate, mgd	Quarterly	Instantaneous	
pH, SU	Quarterly	Instantaneous	0.1
Electrical Conductivity, μS/cm	Quarterly	Instantaneous	10
Total Dissolved Solids, mg/L	Quarterly	Grab	10
Sodium Adsorption Ratio (1), unitless	Quarterly	Calculated	0.1
Ammonia, Total as N, mg/L	Quarterly	Grab	0.05
Fluoride, mg/L	Quarterly	Crab	0.1
Iron, total recoverable, mg/L	Quarterly	Grab	0.05
Total Suspended Solids, mg/L	Quarterly	Grab	10
Temperature, ºF	Quarterly	Instantaneous	1

Footnotes:
(1) See Part V for definition of terms.
(2) Refers to the frequency of observation or measurement. The first quarterly sampling should be performed in January and February; the last quarterly sampling should be performed in November or December.
(3) See the definitions in Part V of the permit.

The monitoring schedule shall be conducted following the time frame specified in ARM 17.30.670 in order to provide information for next permit cycle: The time frame in ARM 17.30.670 are based on irrigation and non-irrigation season and does not follow the calendar quarters of the year. The Department requires:

- The first quarterly sampling of a year shall be performed during January to February, last quarterly sampling of a year shall be performed during November to December.

- The monitoring shall start the first quarter following the approval of instream monitoring location and plan. Once the instream monitoring started, the monitoring shall be performed even if there is no discharge.

The instream monitoring must be conducted no less than 180 days prior to commencement of discharge activity from any outfalls permitted in this permit. The permittee shall notify the Department in writing of the exact instream monitoring location (Latitude, longitude and physical description), the starting date of monitoring, and the starting date of discharge, no less than 90 days prior to the instream monitoring starts.

Data generated from this monitoring may be used to adjust permit limits upon renewal, as necessary, when the permit is renewed, or sooner if conditions warrant.

4. Channel Morphology Survey

A channel morphology survey is required to be conducted in 2015 in this permit cycle for the channel segment between Outfall 005 and the mouth of the Hanging Woman Creek. The results of the survey must be summarized as a report and submitted to the Department before September 30, 2015.

5. Land Application Requirements

Three land application sites are proposed to dispose of approximately 50% of the total produced water, up to 1,030 MGY totally from OW Ranch HWCP, as summarized in Table 8.

Table 8. Proposed produced water land application sites for OW Ranch HWC Project

Site	Description	Location	Acreage	Application period	Total amount
L001	On-ranch sprinkler irrigation of hay meadows, treated CBNG water	Within HWC alluvial corridor above the confluence with Horse Creek	500	04/21–09/20	541 MGY
L002	Soil water recharge and rangeland enhancement, untreated CBNG water	Upland off-channel, within the OW Ranch	2,500	04/20–09/20	326 MGY
L003	On-Ranch subsurface drip irrigation (SDI), treated CBNG water	Upland off-channel, within the OW Ranch	1,300	08/15–02/15	163 MGY
Total			4,300		1,030 MGY

Due to the potential for the discharges on the land application sites to enter local surface waters, the Department is requiring, as a special condition of this permit, the permittee to develop and implement a Best Management Practices (BMP) plan to minimize impacts to surface water and ground water.

The goal of the BMP plan is to minimize any runoff from excessive irrigation entering state waters, and to reduce significant changes of surface water quality due to soil leaching or erosion from riparian land irrigation.

The BMP plan shall include, but is not limited to, water budget, riparian buffer zone installation and management, precipitation monitoring or data acquisition, record keeping, executable irrigation schedule with application rate adjustment to precipitation, soil moisture, site specific soil chemistry, land slope condition and distance to river channel.

A BMP plan is required for each of the three land application sites and shall follow the guidelines below (pursuant to DEQ-9, section 5):

- The wastewater must be applied in a manner so as to prevent any pollutant from entering state waters.
- Any permanent or temporary piping used to transfer wastewater to the irrigation system must be designed, constructed, and operated so that the wastewater is not discharged to state waters at any time during start-up, operation, and shut down.
- Irrigation practices should be managed to prevent ponding of wastewater on the land application site.
- Wastewater may not be land applied or irrigated on frozen or snow-covered ground.
- The land application site shall maintain at least a 100-foot setback or 35-foot vegetated buffer zone between any down-gradient surface waters, open tile line intake structures, sinkholes, agricultural well heads, or other conduits to surface waters.

In addition to general requirements, the BMP plan shall include site specific measures for each site to minimize the impacts to surface water, ground water and soil.

The Department requires an annual soil monitoring for each land application site as part of the BMP plan.

The permittee shall submit the BMP plan to the Department for review and approval at least six (6) months prior to the commencement of the land application. No land application shall be allowed before the written approval of the BMP plan by the Department.

The approved BMP plan shall be made available for each land application site and the operating personnel. An operating log following the BMP plan shall be maintained at each site and made it accessible to the inspection staff of the Department.

The permittee should summarize the soil monitoring data and submit to the Department an annual report no later than December 31 each year.

6. Ice Jam Report

An ice jam analysis report for the duration of this permit cycle for HWC must be submitted before September 30, 2015. The report should be based on information from, but not limited to, USGS publications, National Weather Service Statements, Army Core Engineer Ice Jam database, and local newspapers. The report shall address if the discharge caused more ice jams, with information about the time and location of the ice jam events, if any, as well as the damages made to local ranch activity and other properties.

E. Compliance Schedule

1. Plans and Specification Approval

Prior to construction of the treatment works, the permittee shall submit a line drawing, plans and specifications in sufficient detail for the Department to determine how the permittee will monitor flow and sample the effluent in accordance with the terms of Part I.C. This report is subject to conditions pursuant to Part II, III and IV of the permit.

2. Instream Monitoring

The permittee must start the instream monitoring no less than 180 days prior to commencement of discharge activity from any outfalls permitted in this permit. The permittee shall notify the Department in writing of the exact instream monitoring location (Latitude, longitude and physical description), the starting date of monitoring, and the starting date of discharge, no less than 90 days prior to the instream monitoring starts.

3. BMPs for CBNG Wastewater Land Application

A best management practice (BMP) is required for all the land application sites proposed. The permittee should submit a BMP plan for the department approval for all the land application sites at least six (6) months prior to the actual commence of the land application practice. The goals of the BMP include, but not limited to, not to cause any runoff from excessive irrigation entering state waters, not to cause significant change of surface water quality due to soil leaching or erosion from riparian land irrigation.

The BMP shall consider practical measures taken to carry out the requirement set forth in Part I, section D, subsection 5 of this permit, and shall include, but not limited to, water budget, riparian buffer zone installation and management, precipitation monitoring or data acquisition, record keeping, irrigation schedule with executable application rate adjustment to precipitation, soil moisture, site specific soil chemistry, land slope condition and distance to river channel.

The BMP shall be made available to each land application site and the operating personnel. An operating log shall be maintained at each site and made it accessible to the inspection staff of the Department.

II. MONITORING, RECORDING AND REPORTING REQUIREMENTS

A. Representative Sampling

Samples taken in compliance with the monitoring requirements established under Part I of the permit shall be collected from the effluent stream prior to discharge into the receiving waters. Samples and measurements shall be representative of the volume and nature of the monitored discharge.

B. Monitoring Procedures

Monitoring must be conducted according to test procedures approved under Part 136, Title 40 of the Code of Federal Regulations, unless other test procedures have been specified in this permit. All flow-measuring and flow-recording devices used in obtaining data submitted in self-monitoring reports must indicate values within 10 percent of the actual flow being measured.

C. Penalties for Tampering

The Montana Water Quality Act provides that any person who falsifies, tampers with, or knowingly renders inaccurate, any monitoring device or method required to be maintained under this permit shall, upon conviction, be punished by a fine of not more than $10,000, or by imprisonment for not more than six months, or by both.

D. Reporting of Monitoring Results

Self-Monitoring results will be reported monthly. Monitoring results obtained during the previous reporting period shall be summarized and reported on a Discharge Monitoring Report Form (EPA No. 3320-1), postmarked no later than the 28th day of the month following the completed reporting period. Whole effluent toxicity (biomonitoring) results must be reported on forms from the most recent version of EPA Region VIII's "Guidance for Whole Effluent Reporting" with copies of the laboratory analysis report. If no discharge occurs during the reporting period, "no discharge" shall be reported. Legible copies of these, and all other reports required herein, shall be signed and certified in accordance with the "Signatory Requirements" (see Part IV.G of this permit), and submitted to the Department and the Regional Administrator at the following addresses:

Montana Department of Environmental Quality
Water Protection Bureau
PO Box 200901
Helena, Montana 59620-0901
Phone: (406) 444-3080

E. Compliance Schedules

Reports of compliance or noncompliance with, or any progress reports on interim and final requirements contained in any Compliance Schedule of this permit shall be submitted no later than 14 days following each schedule date.

F. Additional Monitoring by the Permittee

If the permittee monitors any pollutant more frequently than required by this permit, using approved analytical methods as specified in this permit, the results of this monitoring shall be included in the calculation and reporting of the data submitted in the Discharge Monitoring Report. Such increased frequency shall also be indicated.

G. Records Contents

Records of monitoring information shall include:

1. The date, exact place, and time of sampling or measurements;

2. The initials or name(s) of the individual(s) who performed the sampling or measurements;

3. The date(s) analyses were performed;

4. The time analyses were initiated;

5. The initials or name(s) of individual(s) who performed the analyses;

6. References and written procedures, when available, for the analytical techniques or methods used; and

7. The results of such analyses, including the bench sheets, instrument readouts, computer disks or tapes, etc., used to determine these results.

H. Retention of Records

The permittee shall retain records of all monitoring information, including all calibration and maintenance records and all original strip chart recordings for continuous monitoring instrumentation, copies of all reports required by this permit, and records of all data used to complete the application for this permit, for a period of at least three years from the date of the sample, measurement, report or application. This period may be extended by request of the Department at any time. Data collected on site, copies of Discharge Monitoring Reports, and a copy of this MPDES permit must be maintained on site during the duration of activity at the permitted location.

I. Twenty-four Hour Notice of Noncompliance Reporting

1. The permittee shall report any serious incidents of noncompliance as soon as possible, but no later than twenty-four (24) hours from the time the permittee first became aware of the circumstances. The report shall be made to the Water Protection Bureau at (406) 444-3080 or the Office of Disaster and Emergency Services at (406) 841-3911. The following examples are considered serious incidents:

a. Any noncompliance which may seriously endanger health or the environment;

b. Any unanticipated bypass which exceeds any effluent limitation in the permit (See Part III.G of this permit, "Bypass of Treatment Facilities"); or

c. Any upset which exceeds any effluent limitation in the permit (See Part III.H of this permit, "Upset Conditions").

2. A written submission shall also be provided within five days of the time that the permittee becomes aware of the circumstances. The written submission shall contain:

a. A description of the noncompliance and its cause;

b. The period of noncompliance, including exact dates and times;

c. The estimated time noncompliance is expected to continue if it has not been corrected; and

d. Steps taken or planned to reduce, eliminate, and prevent reoccurrence of the noncompliance.

3. The Department may waive the written report on a case-by-case basis if the oral report has been received within 24 hours by the Water Protection Bureau, by phone, (406) 444-3080.

4. Reports shall be submitted to the addresses in Part II.D of this permit, "Reporting of Monitoring Results".

J. Other Noncompliance Reporting

Instances of noncompliance not required to be reported within 24 hours shall be reported at the time that monitoring reports for Part II.D of this permit are submitted. The reports shall contain the information listed in Part II.I.2 of this permit.

K. Inspection and Entry

The permittee shall allow the head of the Department or the Director, or an authorized representative thereof, upon the presentation of credentials and other documents as may be required by law, to:

1. Enter upon the permittee's premises where a regulated facility or activity is located or conducted, or where records must be kept under the conditions of this permit;

2. Have access to and copy, at reasonable times, any records that must be kept under the conditions of this permit;

3. Inspect at reasonable times any facilities, equipment (including monitoring and control equipment), practices, or operations regulated or required under this permit; and

4. Sample or monitor at reasonable times, for the purpose of assuring permit compliance, any substances or parameters at any location.

III. COMPLIANCE RESPONSIBILITIES

A. Duty to Comply

The permittee must comply with all conditions of this permit. Any permit noncompliance constitutes a violation of the Act and is grounds for enforcement action; for permit termination, revocation and reissuance, or modification; or for denial of a permit renewal application. The permittee shall give the Department or the Regional Administrator advance notice of any planned changes at the permitted facility or of an activity which may result in permit noncompliance.

B. Penalties for Violations of Permit Conditions

The Montana Water Quality Act provides that any person who violates a permit condition of the Act is subject to civil or criminal penalties not to exceed $10,000 per day of such violation. Any person who willfully or negligently violates permit conditions of the Act is subject to a fine of not more than $50,000 per day of violation, or by imprisonment for not more than 2 years, or both, for subsequent convictions. MCA 75-5-611(a) also provides for administrative penalties not to exceed $10,000 for each day of violation and up to a maximum not to exceed $100,000 for any related series of violations. Except as provided in permit conditions on Part III.G of this permit, "Bypass of Treatment Facilities" and Part III.H of this permit, "Upset Conditions", nothing in this permit shall be construed to relieve the permittee of the civil or criminal penalties for noncompliance.

C. Need to Halt or Reduce Activity not a Defense

It shall not be a defense for a permittee in an enforcement action that it would have been necessary to halt or reduce the permitted activity in order to maintain compliance with the conditions of this permit.

D. Duty to Mitigate

The permittee shall take all reasonable steps to minimize or prevent any discharge in violation of this permit which has a reasonable likelihood of adversely affecting human health or the environment.

E. Proper Operation and Maintenance

The permittee shall at all times properly operate and maintain all facilities and systems of treatment and control (and related appurtenances) which are installed or used by the permittee to achieve compliance with the conditions of this permit. Proper operation and maintenance also includes adequate laboratory controls and appropriate quality assurance procedures. This provision requires the operation of back-up or auxiliary facilities or similar systems which are installed by a permittee only when the operation is necessary to achieve compliance with the conditions of the permit. However, the permittee shall operate, as a minimum, one complete set of each main line unit treatment process whether or not this process is needed to achieve permit effluent compliance.

F. Removed Substances

Collected screenings, grit, solids, sludges, or other pollutants removed in the course of treatment shall be disposed of in such a manner so as to prevent any pollutant from entering any waters of the state or creating a health hazard. Any sludges removed from the facility shall be disposed of in accordance with 40 CFR 503, 258 or other applicable rule. EPA and MDEQ shall be notified at least 180 days prior to such disposal taking place.

G. Bypass of Treatment Facilities

1. Bypass not exceeding limitations. The permittee may allow any bypass to occur which does not cause effluent limitations to be exceeded, but only if it also is for essential maintenance to assure efficient operation. These bypasses are not subject to the provisions of Parts III.G.2 and III.G.3 of this permit.

2. Notice:

   a. Anticipated bypass. If the permittee knows in advance of the need for a bypass, it shall submit prior notice, if possible at least 10 days before the date of the bypass.

   b. Unanticipated bypass. The permittee shall submit notice of an unanticipated bypass as required under Part II.I of this permit, "Twenty-four Hour Reporting".

3. Prohibition of bypass

   a. Bypass is prohibited and the Department may take enforcement action against a permittee for a bypass, unless:

      (1) The bypass was unavoidable to prevent loss of life, personal injury, or severe property damage;

      (2) There were no feasible alternatives to the bypass, such as the use of auxiliary treatment facilities, retention of untreated wastes, or maintenance during normal periods of equipment downtime. This condition is not satisfied if adequate back-up equipment should have been installed in the exercise of reasonable engineering judgement to prevent a bypass which occurred during normal periods of equipment downtime or preventive maintenance; and

      (3) The permittee submitted notices as required under Part III.G.2 of this permit.

   b. The Department may approve an anticipated bypass, after considering its adverse effects, if the Department determines that it will meet the three conditions listed above in Part III.G.3.a of this permit.

H. Upset Conditions

1. Effect of an upset. An upset constitutes an affirmative defense to an action brought for noncompliance with technology based permit effluent limitations if the requirements of Part III.H.2 of this permit are met. No determination made during administrative review of claims that noncompliance was caused by upset, and before an action for noncompliance, is final administrative action subject to judicial review (i.e., Permittees will have the opportunity for a judicial determination on any claim of upset only in an enforcement action brought for noncompliance with technology-based permit effluent limitations).

2. Conditions necessary for a demonstration of upset. A permittee who wishes to establish the affirmative defense of upset shall demonstrate, through properly signed, contemporaneous operating logs, or other relevant evidence that:

   a. An upset occurred and that the permittee can identify the cause(s) of the upset;

   b. The permitted facility was at the time being properly operated;

   c. The permittee submitted notice of the upset as required under Part II.I of this permit, "Twenty-four Hour Notice of Noncompliance Reporting"; and

   d. The permittee complied with any remedial measures required under Part III.D of this permit, "Duty to Mitigate".

3. Burden of proof. In any enforcement proceeding, the permittee seeking to establish the occurrence of an upset has the burden of proof.

I. Toxic Pollutants

The permittee shall comply with effluent standards or prohibitions established under Section 307(a) of the Clean Water Act for toxic pollutants within the time provided in the regulations that establish those standards or prohibitions, even if the permit has not yet been modified to incorporate the requirement.

J. Changes in Discharge of Toxic Substances

Notification shall be provided to the Department as soon as the permittee knows of, or has reason to believe:

1. That any activity has occurred or will occur which would result in the discharge, on a routine or frequent basis, of any toxic pollutant which is not limited in the permit, if that discharge will exceed the highest of the following "notification levels":

   a. One hundred micrograms per liter (100 mg/L);

b. Two hundred micrograms per liter (200 mg/L) for acrolein and acrylonitrile; five hundred micrograms per liter (500 mg/L) for 2,4-dinitrophenol and for 2-methyl-4, 6-dinitrophenol; and one milligram per liter (1 mg/L) for antimony;

c. Five (5) times the maximum concentration value reported for that pollutant in the permit application in accordance with 40 CFR 122.21(g)(7); or

d. The level established by the Department in accordance with 40 CFR 122.44(f).

2. That any activity has occurred or will occur which would result in any discharge, on a non-routine or infrequent basis, of a toxic pollutant which is not limited in the permit, if that discharge will exceed the highest of the following "notification levels":

a. Five hundred micrograms per liter (500 mg/L);

b. One milligram per liter (1 mg/L) for antimony;

c. Ten (10) times the maximum concentration value reported for that pollutant in the permit application in accordance with 40 CFR 122.21(g)(7); or

d. The level established by the Department in accordance with 40 CFR 122.44(f).

IV. GENERAL REQUIREMENTS

A. Planned Changes

The permittee shall give notice to the Department as soon as possible of any planned physical alterations or additions to the permitted facility. Notice is required only when the alteration or addition could significantly change the nature or increase the quantity of pollutant discharged. This notification applies to pollutants which are not subject to effluent limitations in the permit.

B. Anticipated Noncompliance

The permittee shall give advance notice to the Department of any planned changes in the permitted facility or activity which may result in noncompliance with permit requirements.

C. Permit Actions

This permit may be modified, revoked and reissued, or terminated for cause. The filing of a request by the permittee for a permit modification, revocation and reissuance, or termination, or a notification of planned changes or anticipated noncompliance, does not stay any permit condition.

D. Duty to Reapply

If the permittee wishes to continue an activity regulated by this permit after the expiration date of this permit, the permittee must apply for and obtain a new permit. The application must be submitted at least 180 days before the expiration date of this permit.

E. Duty to Provide Information

The permittee shall furnish to the Department, within a reasonable time, any information which the Department may request to determine whether cause exists for revoking, modifying and reissuing, or terminating this permit, or to determine compliance with this permit. The permittee shall also furnish to the Department, upon request, copies of records required to be kept by this permit.

F. Other Information

When the permittee becomes aware that it failed to submit any relevant facts in a permit application, or submitted incorrect information in a permit application or any report to the Department, it shall promptly submit such facts or information with a narrative explanation of the circumstances of the omission or incorrect submittal and why they weren't supplied earlier.

G. Signatory Requirements

All applications, reports or information submitted to the Department or the EPA shall be signed and certified.

1. All permit applications shall be signed as follows:

    a. For a corporation: by a responsible corporate officer:

b. For a partnership or sole proprietorship: by a general partner or the proprietor, respectively;

c. For a municipality, State, Federal, or other public agency: by either a principal executive officer or ranking elected official.

2. All reports required by the permit and other information requested by the Department shall be signed by a person described above or by a duly authorized representative of that person. A person is considered a duly authorized representative only if:

a. The authorization is made in writing by a person described above and submitted to the Department; and

b. The authorization specified either an individual or a position having responsibility for the overall operation of the regulated facility or activity, such as the position of plant manager, operator of a well or a well field, superintendent, position of equivalent responsibility, or an individual or position having overall responsibility for environmental matters for the company. (A duly authorized representative may thus be either a named individual or an individual occupying a named position.)

3. Changes to authorization. If an authorization under Part IV.G.2 of this permit is no longer accurate because a different individual or position has responsibility for the overall operation of the facility, a new authorization satisfying the requirements of Part IV.G.2 of this permit must be submitted to the Department prior to or together with any reports, information, or applications to be signed by an authorized representative.

4. Certification. Any person signing a document under this section shall make the following certification:

> "I certify under penalty of law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the person or persons who manage the system, or those persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations."

H. Penalties for Falsification of Reports

The Montana Water Quality Act provides that any person who knowingly makes any false statement, representation, or certification in any record or other document submitted or required to be maintained under this permit, including monitoring reports or reports of compliance or noncompliance shall, upon conviction be punished by a fine of not more that $25,000 per violation, or by imprisonment for not more than six months per violation, or by both.

I. Availability of Reports

Except for data determined to be confidential under 40 CFR Part 2, all reports prepared in accordance with the terms of this permit shall be available for public inspection at the offices of the Department. As required by the Clean Water Act, permit applications, permits and effluent data shall not be considered confidential.

J. Oil and Hazardous Substance Liability

Nothing in this permit shall be construed to preclude the institution of any legal action or relieve the permittee from any responsibilities, liabilities, or penalties to which the permittee is or may be subject under Section 311 of the Clean Water Act.

K. Property or Water Rights

The issuance of this permit does not convey any property or water rights of any sort, or any exclusive privileges, nor does it authorize any injury to private property or any invasion of personal rights, nor any infringement of federal, state or local laws or regulations.

L. Severability

The provisions of this permit are severable, and if any provision of this permit, or the application of any provision of this permit to any circumstance, is held invalid, the application of such provision to other circumstances, and the remainder of this permit, shall not be affected thereby.

M. Transfers

This permit may be automatically transferred to a new permittee if:

1. The current permittee notifies the Department at least 30 days in advance of the proposed transfer date;

2. The notice includes a written agreement between the existing and new permittees containing a specific date for transfer of permit responsibility, coverage, and liability between them;

3. The Department does not notify the existing permittee and the proposed new permittee of an intent to revoke or modify and reissue the permit. If this notice is not received, the transfer is effective on the date specified in the agreement mentioned in Part IV.M.2 of this permit; and

3. Required annual and application fees have been paid.

N. Fees

The permittee is required to submit payment of an annual fee as set forth in ARM 17.30.201. If the permittee fails to pay the annual fee within 90 days after the due date for the payment, the Department may:

1. Impose an additional assessment consisting of 15% of the fee plus interest on the required fee computed at the rate established under 15-31-510(3), MCA, or

2. Suspend the processing of the application for a permit or authorization or, if the nonpayment involves an annual permit fee, suspend the permit, certificate or authorization for which the fee is required. The Department may lift suspension at any time up to one year after the suspension occurs if the holder has paid all outstanding fees, including all penalties, assessments and interest imposed under this sub-section. Suspensions are limited to one year, after which the permit will be terminated.

O. Reopener Provisions

This permit may be reopened and modified (following proper administrative procedures) to include the appropriate effluent limitations (and compliance schedule, if necessary), or other appropriate requirements if one or more of the following events occurs:

1. Water Quality Standards: The water quality standards of the receiving water(s) to which the permittee discharges are modified in such a manner as to require different effluent limits than contained in this permit.

2. Water Quality Standards are exceeded: If it is found that water quality standards or trigger values in the receiving stream are exceeded either for parameters included in the permit or others, the department may modify the effluent limits or water management plan.

3. TMDL or Wasteload Allocation: TMDL requirements or a wasteload allocation is developed and approved by the Department and/or EPA for incorporation in this permit.

4. Water Quality Management Plan: A revision to the current water quality management plan is approved and adopted which calls for different effluent limitations than contained in this permit.

5. Toxic Pollutants: A toxic standard or prohibition is established under Section 307(a) of the Clean Water Act for a toxic pollutant which is present in the discharge and such standard or prohibition is more stringent than any limitation for such pollutant in this permit.

6. Toxicity Limitation: Change in the whole effluent protocol, or any other conditions related to the control of toxicants have taken place, or if one or more of the following events have occurred:
   a. Toxicity was detected late in the life of the permit near or past the deadline for compliance.

   b. The TRE/TIE results indicated that compliance with the toxic limits will require an implementation schedule past the date for compliance and the permit issuing authority agrees with the conclusion.

   c. The TRE/TIE results indicated that the toxicant(s) represent pollutant(s) that may be controlled with specific numerical limits, and the permit issuing authority agrees that numerical controls are the most appropriate course of action.

   d. Following the implementation of numerical controls on toxicants, the permit issuing authority agreed that a modified whole effluent protocol is needed to compensate for those toxicants that are controlled numerically.

   e. The TRE/TIE revealed other unique conditions or characteristics which, in the opinion of the permit issuing authority, justify the incorporation of unanticipated special conditions in the permit.

V. DEFINITIONS

1. "**30-day (and monthly) average**," other than for fecal coliform bacteria, means the arithmetic average of all samples collected during a consecutive 30-day period or calendar month, whichever is applicable. Geometric means shall be calculated for fecal coliform bacteria. The calendar month shall be used for purposes of reporting self-monitoring data on discharge monitoring report forms.

2. "**7-day (and weekly) average**," other than for fecal coliform bacteria, means the arithmetic mean of all samples collected during a consecutive 7-day period or calendar week, whichever is applicable. Geometric means shall be calculated for fecal coliform bacteria. The 7-day averages are applicable only to those effluent characteristics for which there are 7-day average effluent limitations. The calendar week which begins on Sunday and ends on Saturday, shall be used for purposes of reporting self-monitoring data on discharge monitoring report forms. Weekly averages shall be calculated for all calendar weeks in the month that has at least four days. For example, if a calendar week overlaps two months, the weekly average is calculated only in the month that contains four or more days of that week.

3. "**Acute Toxicity**" means when 50 percent or more mortality is observed for either species (See Part I.C of this permit.) at any effluent concentration. Mortality in the control must simultaneously be 20 percent or less for the effluent results to be considered valid.

4. "**Annual Average Load**" means the arithmetic mean of all 30-day or monthly average loads reported during the calendar year for a monitored parameter.

5. "**Arithmetic Mean**" or "**Arithmetic Average**" for any set of related values means the summation of the individual values divided by the number of individual values.

6. "**BOD_5**" means the five-day measure of pollutant parameter biochemical oxygen demand.

7. "**Bypass**" means the intentional diversion of waste streams from any portion of a treatment facility.

8. "**$CBOD_5$**" means the five-day measure of pollutant parameter carbonaceous biochemical oxygen demand.

9. **"Chronic Toxicity"** means when the survival, growth, or reproduction, as applicable, for either test species, at the effluent dilution(s) designated in this permit (see Part I.C.), is significantly less (at the 95 percent confidence level) than that observed for the control specimens.

10. "**Composite samples**" shall be flow proportioned. The composite sample shall, as a minimum, contain at least four (4) samples collected over the compositing period. Unless otherwise specified, the time between the collection of the first sample and the last sample shall not be less than six (6) hours nor more than 24 hours. Acceptable methods for preparation of composite samples are as follows:

    a. Constant time interval between samples, sample volume proportional to flow rate at time of sampling;

    b. Constant time interval between samples, sample volume proportional to total flow (volume) since last sample. For the first sample, the flow rate at the time the sample was collected may be used;

    c. Constant sample volume, time interval between samples proportional to flow (i.e. Sample taken every "X" gallons of flow); and,

    d. Continuous collection of sample, with sample collection rate proportional to flow rate.

11. "**Daily Maximum Limit**" means the maximum allowable discharge of a pollutant during a calendar day. Expressed as units of mass, the daily discharge is cumulative mass discharged over the course of the day. Expressed as a concentration, it is the arithmetic average of all measurements taken that day.

12. "**Department**" means the Montana Department of Environmental Quality (MDEQ).

13. "**Director**" means the Director of the United States Environmental Protection Agency's Water Management Division.

14. "**Electrical conductivity (EC)**" means the ability of water to conduct an electrical current at 25 ºC. The electrical conductivity of water represents the amount of total dissolved solids in the water and is expressed as microSiemens/centimeter (µS/cm) or micromhos/centimeter (µmhos/cm) or equivalent units and is connected to 25 ºC.

15. "**EPA**" means the United States Environmental Protection Agency.

16. **"Grab**" sample, for monitoring requirements, means a single "dip and take" sample collected at a representative point in the discharge stream.

17. "**Instantaneous**" measurement, for monitoring requirements, means a single reading, observation, or measurement.

18. "**Load limits**" are mass-based discharge limits expressed in units such as lb/day.

19. "**Mixing zone**" means a limited area of a surface water body or aquifer where initial dilution of a discharge takes place and where water quality changes may occur. Also recognized as an area where certain water quality standards may be exceeded.

20. "**Nondegradation**" means the prevention of a significant change in water quality that lowers the quality of high-quality water for one or more parameters. Also, the prohibition of any increase in discharge that exceeds the limits established under or determined from a permit or approval issued by the Department prior to April 29, 1993.

21. "**Regional Administrator**" means the administrator of the EPA Region with Jurisdiction over federal water pollution control activities in the State of Montana.

22. "**Severe property damage**" means substantial physical damage to property, damage to the treatment facilities which causes them to become inoperable, or substantial and permanent loss of natural resources which can reasonably be expected to occur in the absence of a bypass. Severe property damage does not mean economic loss caused by delays in production.

23. "**Sewage Sludge**" means any solid, semi-solid or liquid residue that contains materials removed from domestic sewage during treatment. Sewage sludge includes, but is not limited to, primary and secondary solids and sewage sludge products.

24. "**Sodium Adsorption Ratio (SAR)**" means a value representing the relative amount of sodium ions to the combined amount of calcium and magnesium ions in water using the following formula: $SAR=[Na]/(([Ca]+[Mg])/2)^{1/2}$, where all concentrations are expressed as milliequivalents of charge per liter.

25. "**TIE**" means a toxicity identification evaluation.

26. "**TRE**" means a toxicity reduction evaluation.

27. "**TMDL**" means the total maximum daily load limitation of a parameter, representing the estimated assimilative capacity for a water body before other designated uses are adversely affected. Mathematically, it is the sum of wasteload allocations for point sources, load allocations for non-point and natural background sources, and a margin of safety.

28. "**TSS**" means the parameter total suspended solids.

29. "**Upset**" means an exceptional incident in which there is unintentional and temporary noncompliance with technology-based permit effluent limitations because of factors beyond the reasonable control of the permittee. An upset does not include noncompliance to the extent caused by operational error, improperly designed treatment facilities, inadequate treatment facilities, lack of preventive maintenance, or careless or improper operation.